Background and aim Timely and accurate diagnosis of children with osteomyelitis is crucial, diagnostic imaging play a major role in determine the presence of acute osteomyelitis, treatment planning and follow up. Physicians encouraged to take the advantage of all available modalities as early intervention would prevent all possible adverse outcome of late diagnosis. The aim of this study is to explore the different imaging modalities in verifying the diagnosis of paediatrics acute osteomyelitis.

Methods All cases diagnosed with Acute Osteomyelitis between January 2000 and December 2013 were retrospectively reviewed at main tertiary children hospital. Our approach included a detailed description of radiological features of paediatric patients with acute haematogenous osteomyelitis.

Results 79 cases of acute osteomyelitis were diagnosed. 68 (86.1%) of children had X-Ray within first two weeks. (51.5%) reported as normal compared to (48.5%) abnormal (Periosteal reaction- Ostelytic lesions- soft tissue swelling). Ultrasound done in 34 (44%) of children, (70.6%) reported normal vs. (29.4%) abnormal (effusion). MRI study done in 73 (92.4%) and revealed osteomyelitis in 100% of imaging.16 patients (20.3%) had Bone Scan,(12.5%) reported normal compared to (87.5%) abnormal. (100%) of children with positive bone scan had similar osteomyelitis on MRI.

Conclusion Our study confirmed that MRI is the gold standard of imaging modality which combines high sensitivity with specificity to confirm osteomyelitis in children despite having normal X-ray, Ultrasound and Bone scan. Simple X-ray might be useful to diagnose osteomyelitis if MRI is difficult to perform or if the cost plays a major role in the patient care.